

FIG. 2

SHEET
OF PAPER

SCANNER HEAD

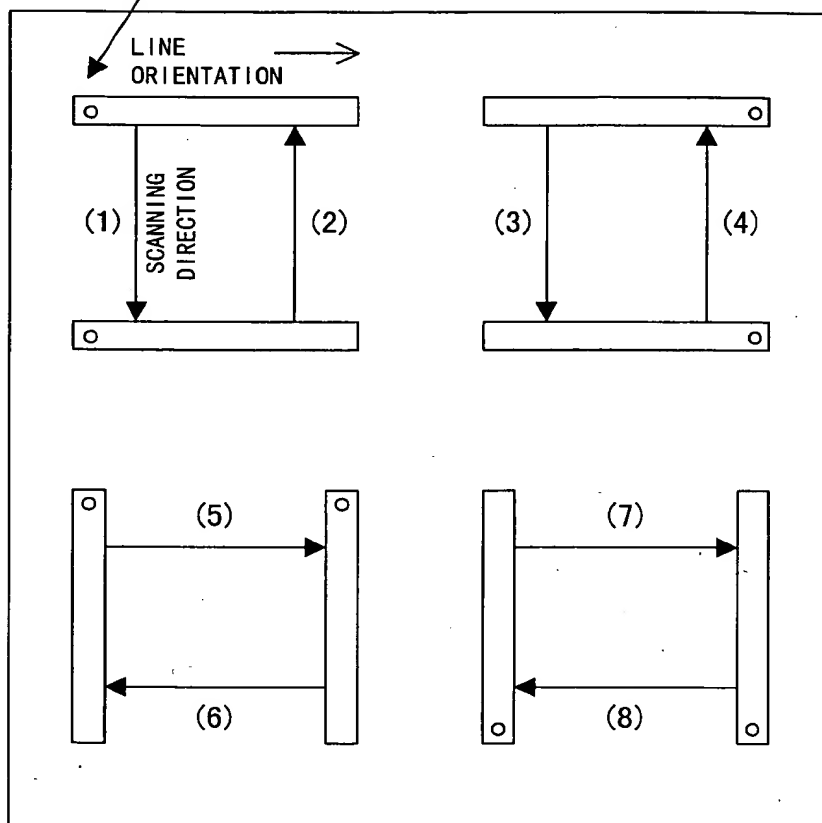
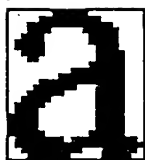


FIG. 3

(1)



PROPERLY
ORIENTATED

(2)



ROTATED BY
180 DEGREES
AND FLIPPED
TO MIRROR
IMAGE

(3)



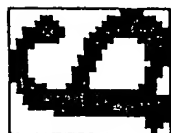
FLIPPED TO
MIRROR
IMAGE

(4)



ROTATED BY
180 DEGREES

(5)



ROTATED BY
90 DEGREES
AND FLIPPED
TO MIRROR
IMAGE

(6)



ROTATED BY
270 DEGREES

(7)



ROTATED BY
90 DEGREES

(8)



ROTATED BY
270 DEGREES
AND FLIPPED
TO MIRROR
IMAGE

FIG. 4

PART OF INPUT IMAGE

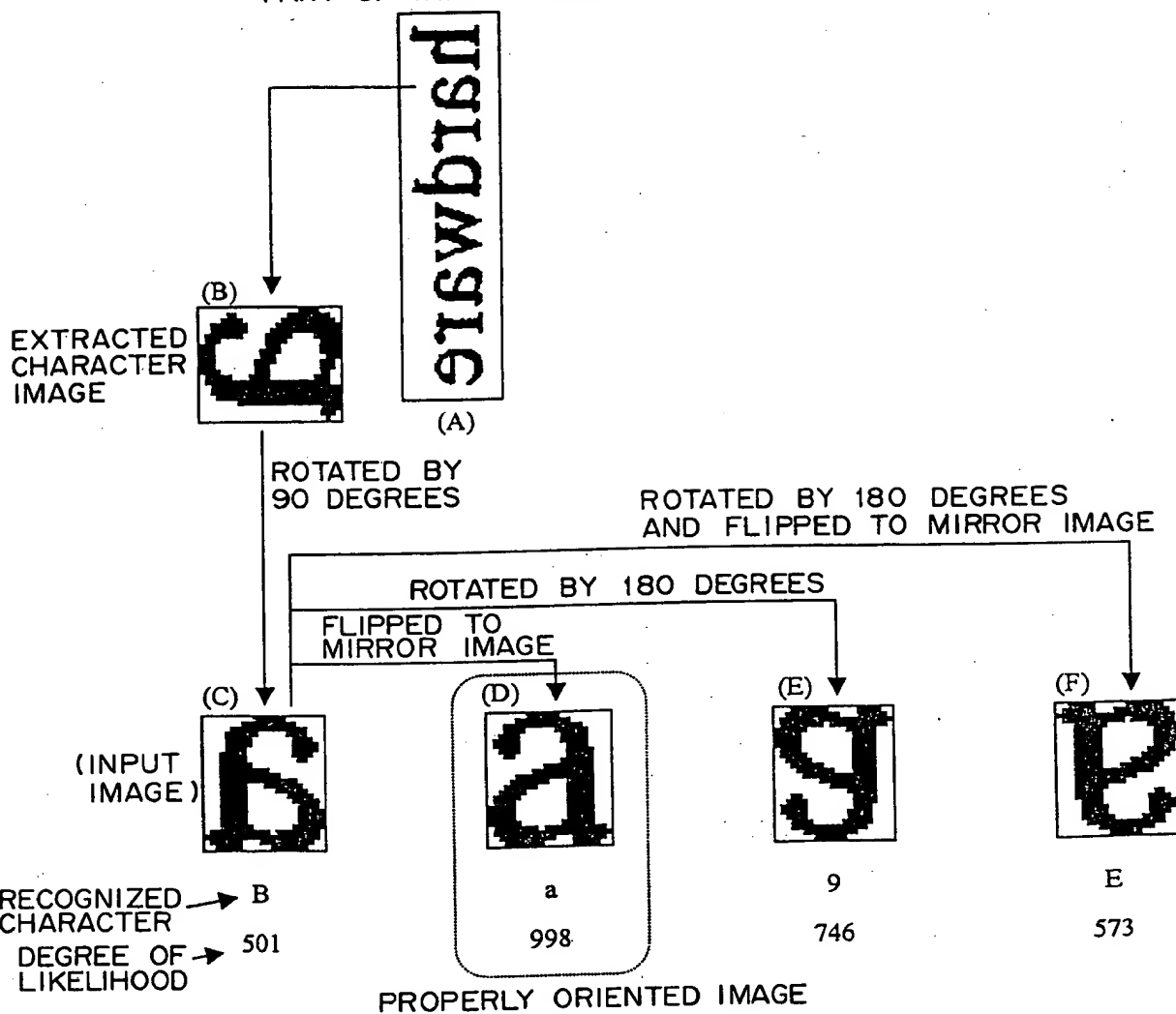


FIG. 5

094223 07000

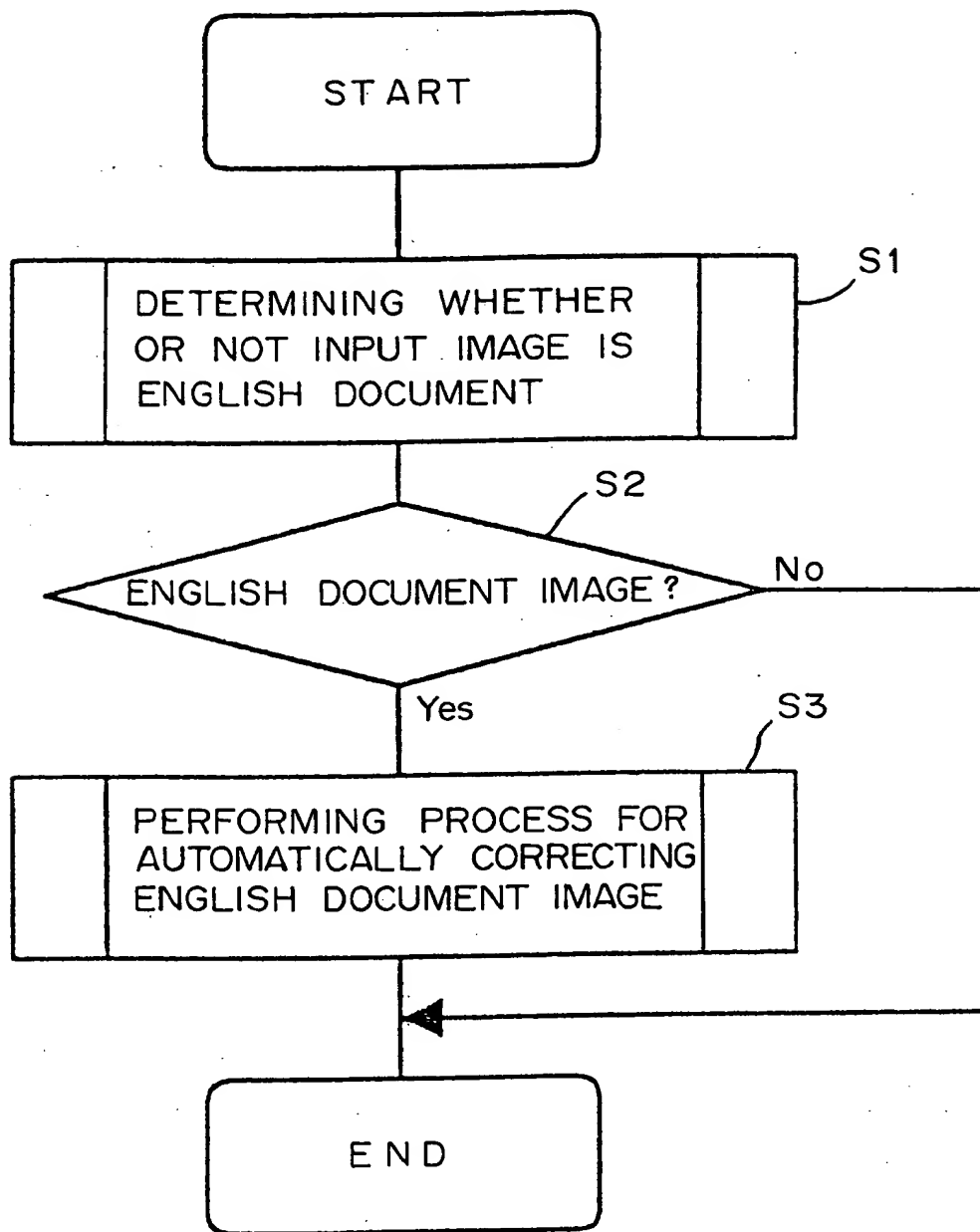


FIG. 7

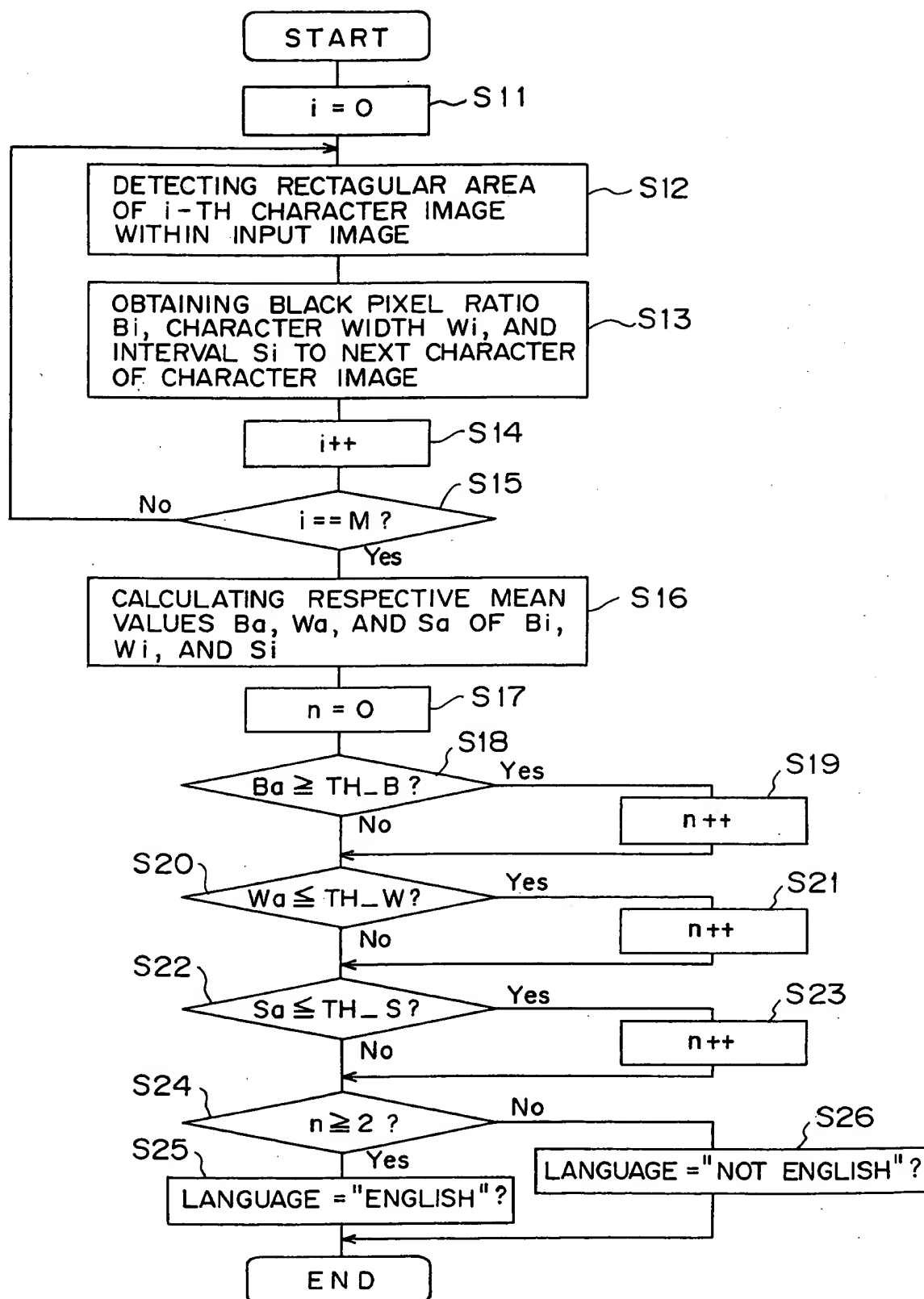


FIG. 8

PART OF DOCUMENT IMAGE

hardware

CHARACTER WIDTH.

PART OF DOCUMENT IMAGE

hardware

CHARACTER WIDTH.

FIG. 9

[illegible]


```

graph TD
    START([START]) --> S31[i=0]
    S31 --> S32[DETECTING RECTANGULAR AREA OF i-TH CHARACTER IMAGE WITHIN INPUT IMAGE]
    S32 --> S33[OBTAINING INTERVAL BETWEEN CHARACTER IMAGES]
    S33 --> S34[i++]
    S34 --> S35{i==M?}
    S35 -- NO --> S32
    S35 -- YES --> S36[CALCULATING DISTRIBUTION "V" OF CHARACTER INTERVALS S1 THROUGH SM]
    S36 --> S37{V ≥ TH_V?  
(DISTRIBUTION IS EQUAL TO OR LARGER THAN THRESHOLD VALUE?)}
    S37 -- NO --> S39[LANGUAGE="NOT ENGLISH"]
    S37 -- YES --> S38[LANGUAGE="ENGLISH"]
    S38 --> END([END])
    S39 --> END
  
```

FIG. 11

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graph TD
    START([START]) --> S41[S41: DETECTING LINE ORIENTATION OF INPUT IMAGE]
    S41 --> S42[S42: j=0, D1~D4=0]
    S42 --> S43[S43: EXTRACTING ONE CHARACTER IMAGE E1 FROM INPUT IMAGE]
    S43 --> S44{S44: LINE ORIENTATION = VERTICAL?}
    S44 -- Yes --> S45[S45: ROTATING CHARACTER IMAGE E1 BY 90 DEGREES]
    S44 -- No --> S46{S46: RATIO OF LONG SIDE TO SHORT SIDE < 2?}
    S45 --> S46
    S46 -- Yes --> S47{S47: BLACK PIXEL RATIO IS WITHIN RANGE FROM 42 TO 80%?}
    S46 -- No --> S47
    S47 -- No --> S43
    S47 -- Yes --> S48[S48: GENERATING IMAGES E2 THROUGH E4, WHICH ARE OBTAINED BY FLIPPING CHARACTER IMAGE E1 TO MIRROR IMAGE, BY ROTATING E1 BY 180 DEGREES, AND BY ROTATING E1 BY 180 DEGREES AND FLIPPING ROTATED IMAGE TO MIRROR IMAGE]
    S48 --> S49[S49: PERFORMING CHARACTER RECOGNITION FOR E1 THROUGH E4, AND OBTAINING DEGREES OF LIKELIHOOD K1 THROUGH K4 AND CHARACTER CODES C1 THROUGH C4]
    S49 --> S50{S50: TWO OR MORE AMONG K1 THROUGH K4 ARE HIGHER THAN TH_K?}
    S50 -- Yes --> S43
    S50 -- No --> S51[S51: DETECTING MAXIMUM VALUE OF K1 THROUGH K4, AND DEFINING ITS NUMBER TO "M"]
    S51 --> S52{S52: Km ≥ TH_K?}
    S52 -- No --> S43
    S52 -- Yes --> S53{S53: IS Cm ENGLISH CHARACTER?}
    S53 -- No --> S43
    S53 -- Yes --> S54{S54: IS Cm PARTICULAR CHARACTER?}
    S54 -- Yes --> S55[S55: Dm++]
    S54 -- No --> S55
    S55 --> S56{S56: Dm == 2?}
    S56 -- No --> S43
    S56 -- Yes --> S59[S59: PERFORMING SAME CONVERSION METHOD AS THAT FOR CONVERTING IMAGE E1 TO IMAGE Em FOR INPUT IMAGE]
    S59 --> END([END])
    S57[S57: j++] --> S58{S58: j == N?}
    S58 -- Yes --> END
    S58 -- No --> S43

```

FIG. 12

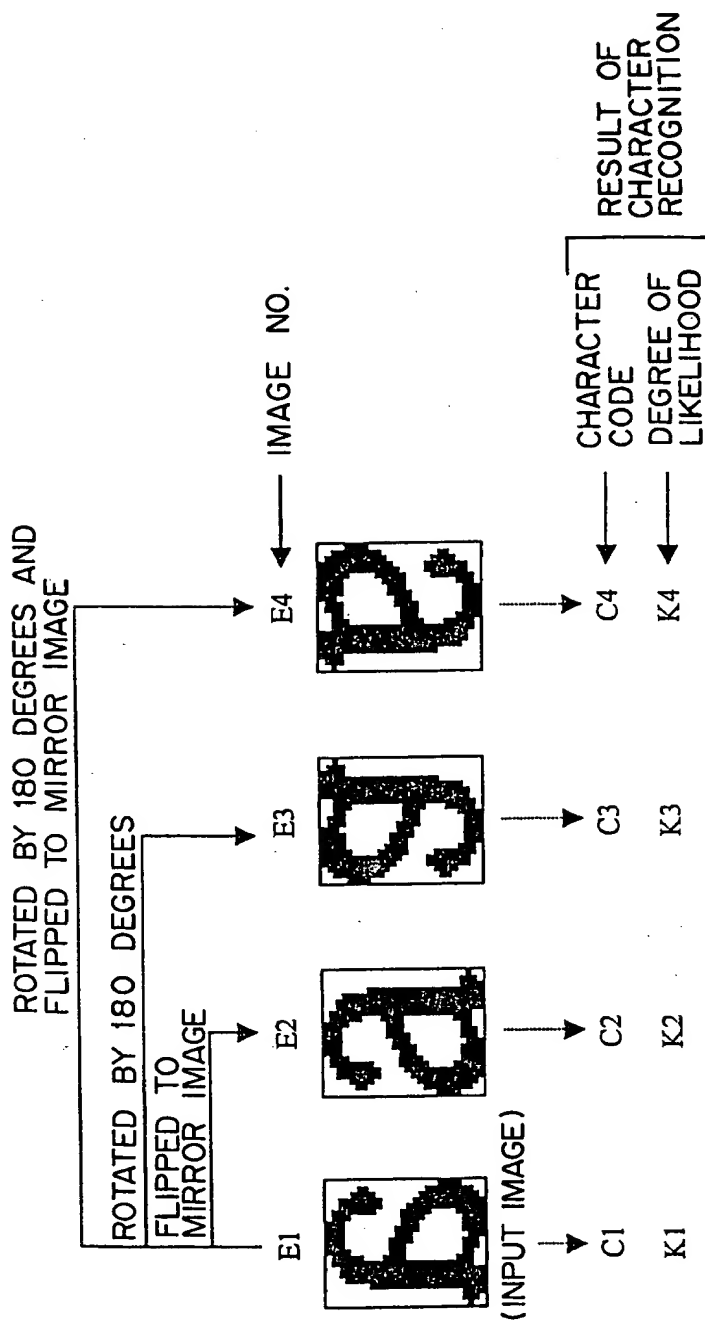


FIG. 13

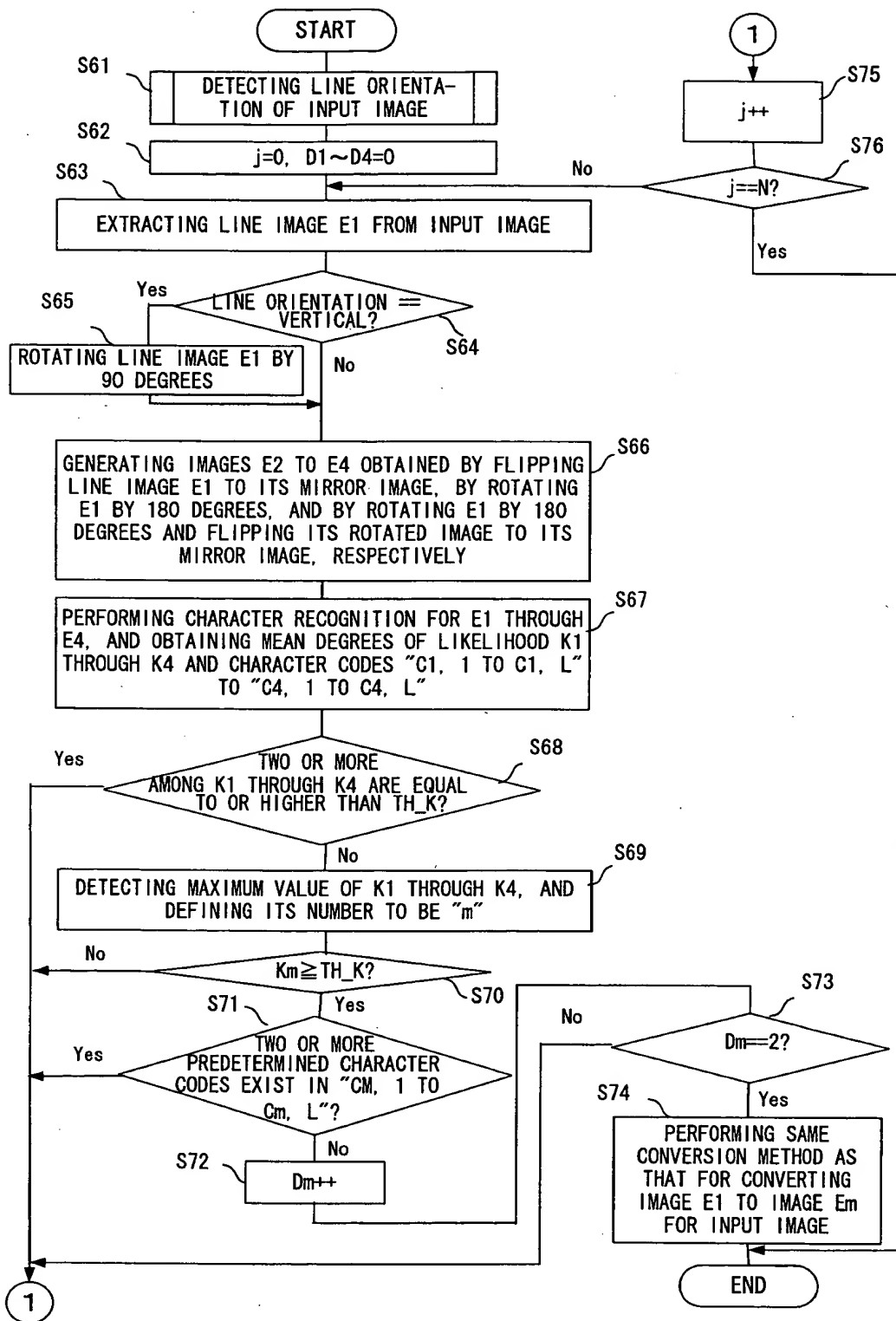


FIG. 14

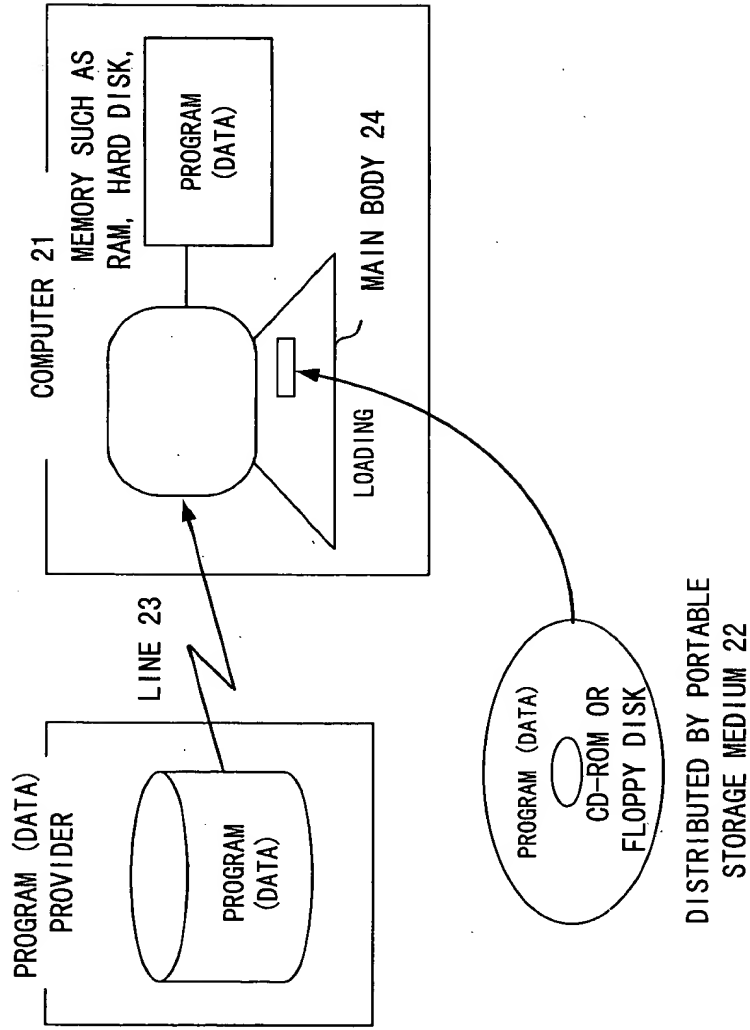


FIG. 15